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ABSTRACT

This document is a tool to help teachers look at student work as a means to assess individual student progress. It contains work samples, accompanying commentaries, and assessment tools which originate from students and teachers in Philadelphia public schools who participated in the Philadelphia Education Fund's Small Learning Community Mini-Grants program. After a prologue, "Why is Looking at Student Work Important?" (Kate Nolan), an introductory section explains how to use this document at school, presents a set of guidelines to help teacher teams get started with a process of inquiry into student work, and describes how to document observations. The next section presents a selection of student work examples with teacher commentary. Topics include: developing measurement concepts and tools; developing geometry skills through manipulatives; exploring the art of storytelling with a poet-in-residence; studying multiple aspects of children's book illustrations; integrating problem solving math and science investigations; and studying animals and other living things by researching in the library and over the Internet. (SM)

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ED 455 239

What Story Does the Work Tell?

A Resource of Curricular Units, Student Work and Commentary by Philadelphia Teachers

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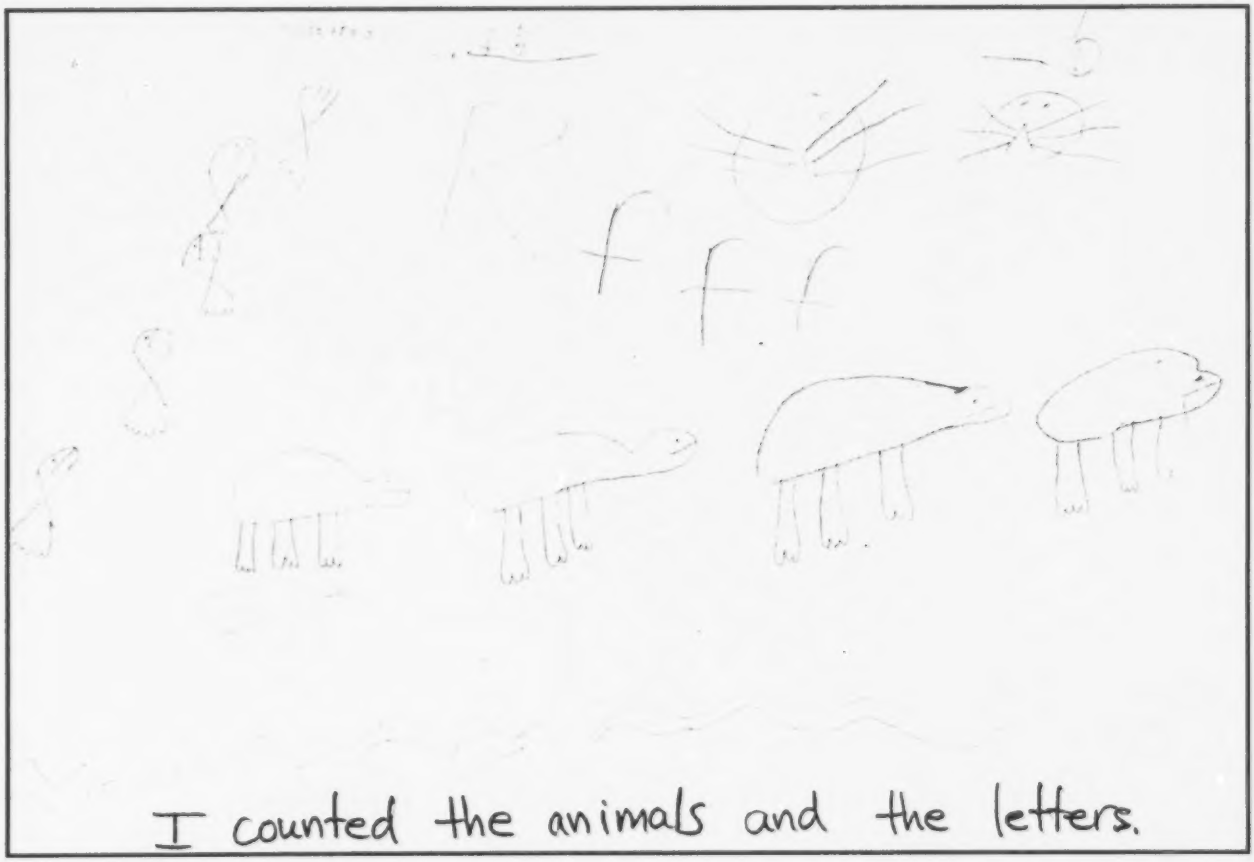

Making Sense of the World Through Math Literacy, Wilson Elementary, Kindergarten

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We would like to thank the teachers who supported our idea to create a publication focused on looking at student work. Our special gratitude goes to the teachers and students who shared their work for this publication.

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Why is Looking at Student Work Important?

by Kate Nolan, Director of Accountability, Annenberg Institute for School Reform

Consider for a moment a typical teacher, working with a group of students, responding to their questions and statements in class. Suppose we could look into that teacher's brain and understand its swirling chemical language. We would witness a sophisticated decision procedure unfolding in the blink of an eye:

- Does Marie understand the connection between what she's saying and the lesson we just worked on?
- What does Jamal's brilliant grasp of these ideas mean given what I know his project looks like?
- How will we ever cover the whole textbook?
- Why is Kelly so blue today?
- Mikhail is working on an essay (it looks like it is going well). What will I challenge him with next?
- Is the public address system with its constant interruptions sidetracking anyone?
- Keira is ready for the next steps, but how can I help her?

Teachers weigh all of these questions with lots of evidence about what students know, what they've demonstrated in the past, and what must be taught next, in order to make difficult instructional decisions. In the blink of an eye.

To do this well—to navigate quickly and effectively the changing tides of a classroom full of rich ideas and potent thinkers—teachers need to set anchor every now and then. Looking at student work is the anchor.

We live in a world filled with exhortations to be "data-driven." We're invited to be "reflective practitioners." We know we should be "looking at the research." The process of studying student work is a meaningful and challenging way to be data-driven, to reflect critically on our instructional practices, and to identify the research we might study to help us think more deeply and carefully about the challenges our students provide us.

Student work is not the center of the educational universe—that spot is reserved for well educated young people, prepared to enter the worlds of work, community and further study, backed by a complete and rigorous intellectual preparation and equipped with a moral compass set to true north. Students are at the center of what we do, but just next to the center lies student work.

We know who our students are, what they think and believe, where they are right and wrong, and especially where they are provocative and challenging, by careful study of their

work. Better yet, we learn a lot about who we are, what we think and believe, where we are right and wrong, and especially where we are provocative and challenging by looking at student work. Rich, complex work samples show us how students are thinking, the fullness of their factual knowledge, the connections they are making. Talking about them together in an accountable way helps us learn how to adjust instruction to meet the needs of our students.

Habit and tradition cause teachers to spend a lot of time studying what to teach, but curiosity and fascination bring us together to study what we have taught and what students have learned. The teacher who is a learner is eager and hungry for the kind of discussions we can have when student work is the focus. We work together like an artists' colony, considering our craft and our materials, the quality of the process and the product, generating ideas about how to make our work better.

This cannot be done in isolation. Fruitful study of student work requires a well conceived process, a dedicated group of colleagues willing to work hard and take risks, and open minds and hearts seeking to move ahead. We study student work because it is the most tangible artifact of the teaching craft. We study student work to know more about the subjects we teach, more about child development, more about strengths and weaknesses in the assignments we design and choose. We study it together because we learn more from other practitioners than we can learn alone.

We study student work because, just as the proof of the pudding is in the tasting, the proof of the teaching and learning is in the work our students produce. Standards are deadly dull statements in heavy books and binders—until we call them to life by letting student work show us the standards we are using. How do we know all of our students are meeting high standards? The work will show us.

Why look at student work? It's what we do to be productively self-critical. It's what we do to learn more about teaching and learning. And it helps us to make better sense of the swirling questions about Marie and Jamal, Mikhail and Keira. Long, careful study makes quick, blink-of-the-eye decisions more informed, more focused, and more skillful.

Googolah

Food Type: Snacks

Country of origin: Guyana (We eat this every weekend.)

Amounts & Ingredients:

3 mashed bananas
1 cup flour
1/2 tsp. baking powder
1/3 cup sugar
1/3 cup raisins (optional)
1/2 pint vegetable oil

Number of Servings: 40

Recipe Contributed by:

Old family recipe from Guyana.

Preparation Instructions & Materials

1 deep frying pan, 1 bowl, 1 spoon,
1 draining spoon, 1 dish, 1 paper towel

Pour oil into frying pan and heat, put 1 paper towel into dish, leave other paper towel to cover Googolah. Combine mashed bananas, flour, and baking powder in bowl. Add sugar and raisins. Mix well for 2 min.

Cooking Directions

Take a spoonful of the mixture and drop it into the heated oil. Do that until there is no more room in the pan. Be sure to leave a space between each Googolah. Turn them around after two min. of putting them in the pan. When they turn a medium brown, take them out of the frying pan and put them in the dish with the paper towel. Do that until you are finished with the mixture. When finished, put other paper towel on top of Googolah and let cool before eating.

Transcript of Interview 5/3/99 Brenda and her mom, Meena originally from Guyana

Brenda: What did you do at Christmas time? Did you put up a tree?
Meena: No, I did not put up a tree. Only the wealthy can afford trees and decorate them because trees are expensive.
Brenda: For Easter, what did you do? Did you make a kite?
Meena: I made a lot of kites and went to the pasture and flew them.
Brenda: What kind of foods did you eat for snacks?
Meena: I had many kinds of foods for snacks. I had Googolah, Mahambug, rice pudding and a lot more.
Brenda: What was your favorite food?
Meena: I did not have a favorite food.

Introduction: What Story Does the Work Tell?

This publication is a tool to help teachers look at student work. The work samples, accompanying commentary, and assessment tools featured in this publication originate from students and teachers in Philadelphia public school classrooms who have participated in the Philadelphia Education Fund's Small Learning Community Mini-Grants program.

The selection of student work included in this publication ranges across content areas and grade levels to provide us with "windows" into student learning. The commentary was developed by teams of teachers who looked together at the samples for evidence of student learning. Such a process of inquiry encourages professional collaboration, shapes further student learning opportunities and classroom instruction, provides concrete examples of student development, and informs us concretely of individual students, their challenges and their successes. This is the story that student work tells.

How Was This Publication Put Together?

During the 1998-1999 school year, the Philadelphia Education Fund supported teachers in the development, implementation, and assessment of standards-based units of study through its Small Learning Community Mini-Grants program. Small Learning Communities are units within larger schools that contain their own students and teachers and share a unifying theme around which all classes and activities are focused. The Fund awarded more than $200,000 in Mini-Grants to teams of teachers in over 70 schools across the School District of Philadelphia. These grants supported curriculum units in classrooms and made money available for instructional materials, books, and professional development. The Fund provided additional support through professional development for teachers that focused on looking collaboratively at student work.

The process of looking at student work in order to assess individual student progress was new for some teachers. Others have been looking at student work as part of ongoing professional development activities for many years. In order to prepare final reports on their projects, teacher teams collected and analyzed a sample of student work to provide one story of teaching and learning in their classrooms. Professional development workshops provided opportunities for these teachers to practice looking and analyzing. For each work sample, teachers provided a summary of their Unit of Study, an analysis of student learning, and in some cases, a reflection on how their analysis could impact student learning and classroom practice.

Using This Publication in Your School

Hopefully, you have already read Kate Nolan's perspective on why looking at student work is important. On the following page is a set of guidelines that were used in the Philadelphia Education Fund's professional development workshops. We encourage you to use or adapt these guidelines for your own professional conversation around looking at student work. Additional guidelines or protocols for looking at student work are available in the references and resources section of this book.

First, read the book for the pure enjoyment of hearing the voices of teachers and students from across the city seriously engaged in teaching and learning. Then you may find it helpful to use a work sample from this book to try out your own inquiry into student work. Use the guidelines on pages 3-4 to do your own analysis of a student work sample. Remember, we all bring our own eyes and unique experiences to looking at student work. Take time to examine the teacher commentary to see examples of how colleagues synthesized their analysis into a reflective narrative about learning and teaching in their classrooms.

It is our hope that this publication will be useful for a variety of purposes. Put it in your school professional development library for teachers, staff, administrators, and parents. Actively use it in your professional conversations and teacher meetings. Contact some of the teachers involved in these projects to get more information about the development of their units of study. Contact the Philadelphia Education Fund to let us know about new ways you find to use this resource and how it might be developed further in the future.

Guidelines for Looking at Student Work

The following guidelines were provided to help teacher teams get started with a process of inquiry. These guidelines were informed by the work of a variety of education organizations and practitioners.*

1. Gather a team, or small group, of teachers together.

2. Select a piece of student work. The sample should demonstrate a rich variety of student learning. It can be a work-in-progress, a final piece, or a document of a performance. Also collect the scoring guide or rubric used to assess that piece. Make copies for team members, if possible.

3. If someone in the group is not familiar with your unit of study, take a few minutes to introduce its overall purpose, the activities that have been conducted, and the work that has been generated.

4. Discuss and write down one standard from the Philadelphia Curriculum Frameworks that you expected students to address in this activity. What did you expect the students to know and be able to do?

5. Next, take a few minutes to look at the work as a group. Either read it aloud, or let each person take a turn looking at it.

6. Write down the group's observations about the work. Then write down comments and questions. You might allow each team member to do this first individually and then share in turn.

7. Next, use your scoring guide or rubric to assess the piece of work. If you do not yet have a scoring guide, reread the standard you have identified and assess the work based on its criteria. (You might put together an informal rubric by doing this.)

8. Take a few minutes to discuss as a team the following questions: What can you see from your observations, comments, and questions that will help you assess student learning? How might these observations determine your next steps as a teacher? Do these observations tell you anything new about your unit of study or classroom activities?

* Influences include, but are not limited to, Pat Carini's Descriptive Review Process, various Tuning Protocols as developed by the Coalition of Essential Schools and the Annenberg Institute for School Reform, New Standards documentation of student work, and information gathered from the Education Trust's Standards in Practice project.

Documenting Your Observations

While observation and discussion are important components in this process, documentation is vital for recording insights and ideas. Mini-Grant recipients were asked to share their inquiry into a piece of student work generated during their Unit of Study by answering the following questions on their final report:

- **What should students know and be able to do?**
  Select one standard that is most directly related to the activity from which the student work was created. Please write out the entire standard.

- **What were students asked to do?**
  Clearly outline the activity or performance that students were asked to conduct. Use concrete examples.

- **What story does the work tell?**
  Take some time and look deeply at the student work. For your own use, record your observations, comments, and questions. Look specifically for evidence that your selected standard has been addressed. Analyze the student work using your standard to assess student learning. Using your observations as evidence, discuss how one can tell that the student has understood and synthesized the knowledge, skills, and concepts addressed in the standard.

- **How good is good enough?**
  Use your scoring rubric or other assessment tools to assess your sample of student work. Describe how the student has exceeded, met, or failed to meet the expectations set forth by the scoring rubric. Include a copy of the rubric if possible.

- **How can your inquiry guide further instruction?**
  Discuss what your inquiry into the sample of student work tells you about student learning, classroom instruction, and the assignment given. How might you do things differently in the future?

Student Work Examples with Teacher Commentary

The following section contains examples of student work, as well as the commentary of teachers about this work. Teachers' answers were given in response to a series of questions asked on the final report for all 1998-1999 Small Learning Community Mini-Grant recipients.

School	Content Area Focus
Lawton Elementary, pg 7	Mathematics
Hunter Elementary, pg 13	Visual Arts
Stetson Middle, pg 19	Mathematics
Germantown High, pg 22	English Language Arts
Spruance Elementary, pg 28	ELA and Visual Arts
University City High, pg 33	Mathematics
Comly Elementary, pg 37	Science
Rhawnhurst Elementary, pg 41..	English Language Arts

Measuring Success

School: Lawton Elementary
Small Learning Community: Mathematics through Literature
Teachers: Roberta Devine, Gloria Lewis, Rosemary McCaw, Joy Michaelchuck
School Phone: 215-335-5659

Example of Student Work: Report including ruler, charts and writing
Content Area Focus: Mathematics
Grade: 2

In this Unit of Study, second grade students participated in a series of activities and projects designed to build skills and understanding of measurement concepts and tools. Activities included calculating the value of a handful of coins, graphing data, and measuring feet. The teachers chose to analyze one student's report on foot sizes.

Unit of Study Summary

"This Unit of Study provide[s] a variety of activity-based lessons which allowed children to learn the skills they need to understand and make measurements. Using mathematics-based literature and manipulatives, the children demonstrated their understanding of measurement through hands-on tasks and writing.

The unit began with a problem to assess children's prior knowledge about measurement and a story, read aloud by the teacher. After reading and discussing the story, the children were asked to choose things they could use to measure objects in the classroom. Before measuring the objects the children estimated the length of the objects in the unit they had chosen. The estimation and actual measurement were compared. The importance of everyone using a unit of measurement that will not change size and everyone can understand was discussed. Additionally, several books on measurement were placed in the book basket for children to read during Self Selected Reading. Children were also asked to interview their parents to find out how they use measurements in their jobs. A list of jobs in which workers need to use measurements was compiled and displayed in the classroom.

The children worked in small groups, pairs, and individually to collect the data they needed to make a graph and write a shoe story; to show the value of a handful of coins; to create a picture of an object using quarters, dimes, nickels, and pennies and to find out if they were a square. The completed tasks were assessed using Houghton Mifflin's Generic Mathematics Rubric for Grade 2. The components of the work include measurement, collecting and recording data, comparing data through graphic representation, writing in math clearly and concisely, as well as managing the data."

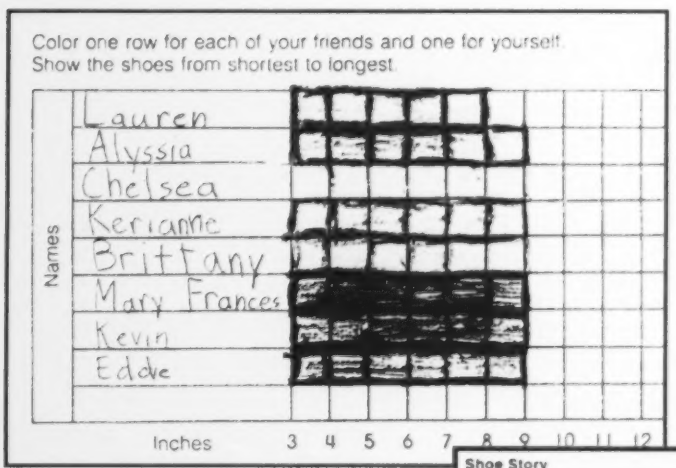
What should students know and be able to do?

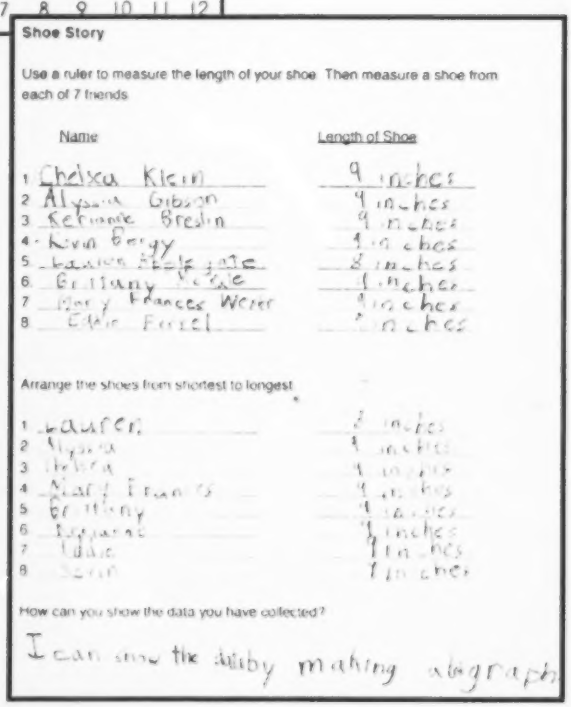
Solve problems in which there is a need to measure accurately by selecting and using appropriate tools, techniques, and units; apply the results and communicate the reasoning used in solving these problems. [Mathematics Standard #2, Measurement; Philadelphia Curriculum Frameworks]

What were students asked to do?

"Students were asked to listen to *How Big Is a Foot?* by Rolf Myller to find out how using a foot as a measuring tool might create problems. Students were given an opportunity to discuss why the bed was too small. Volunteers were asked to pace off the length of the classroom in feet. Then the students explained why the measurements were different. On drawing paper, each student was asked to trace around his/her shoe and cut it out. First,

students estimated the length of their shoe tracings. Next, they measured the length of their shoe tracings to the nearest inch. Then they measured a shoe from each of seven friends and recorded their shoe measurements on a graph. After recording the data on a graph, the students wrote a Shoe Story. To further develop measurement skill, make comparisons, and develop estimation skills, the students were asked to measure the length of various objects in the classroom with their own feet and also with the ruler, so that they could compare their feet to the king's foot. After each measurement, they recorded their measurements and made estimates about how many of the king's feet it would take to cover the same distance. Finally, they wrote The King's Foot Story."





Shoe Story

Use a ruler to measure the length of your shoe. Then measure a shoe from each of 7 friends.

	Name	Length of Shoe
1	Chelsea Klein	9 inches
2	Alyssia Gibson	9 inches
3	Kerianne Breslin	9 inches
4	Kevin Berry	9 inches
5	Lauren Shelgate	8 inches
6	Brittany Towle	8 inches
7	Mary Frances Weiss	9 inches
8	Eddie Fussel	9 inches

Arrange the shoes from shortest to longest.

1 Lauren	8 inches
2 Alyssia	9 inches
3 Chelsea	9 inches
4 Mary Frances	9 inches
5 Brittany	9 inches
6 Kerianne	9 inches
7 Eddie	9 inches
8 Kevin	9 inches

How can you show the data you have collected?

I can show the data by making a graph.

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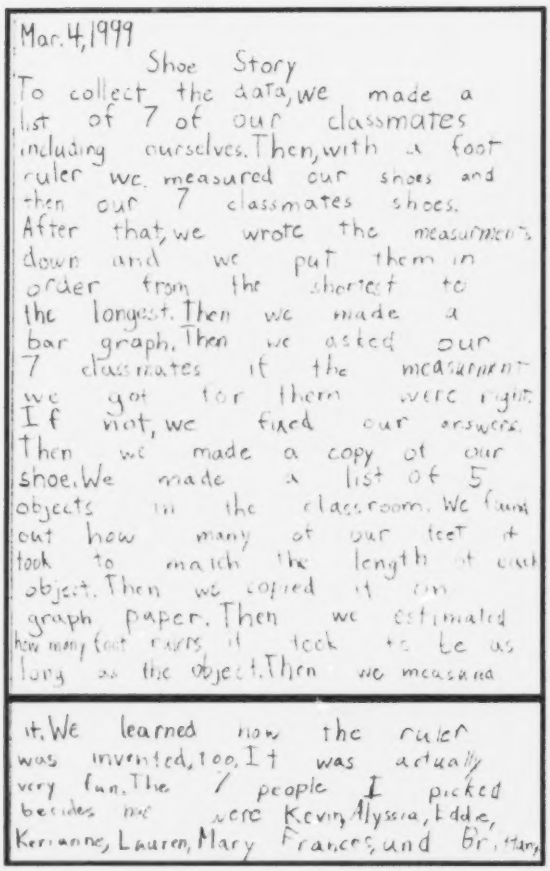
What story does the work tell? How good is good enough?

"The sample of student work was assessed using Houghton Mifflin's Generic Mathematics Rubric. (see pg. 12) This measurement task analysis resulted in a score of "4" on the rubric because the student's responses showed complete understanding of the investigation, addressed all components, reached a valid conclusion, and communicated clearly through writing.



Mar. 4, 1999

Shoe Story

To collect the data, we made a list of 7 of our classmates including ourselves. Then, with a foot ruler we measured our shoes and then our 7 classmates shoes. After that, we wrote the measurments down and we put them in order from the shortest to the longest. Then we made a bar graph. Then we asked our 7 classmates if the measurment we got for them were right. If not, we fixed our answers. Then we made a copy of our shoe. We made a list of 5 objects in the classroom. We found out how many of our feet it took to match the length of each object. Then we copied it on graph paper. Then we estimated how many foot rulers it took to be as long as the object. Then we measured it. We learned how the ruler was invented, too. It was actualy very fun. The 7 people I picked besides me were Kevin, Alyssia, Eddie, Kerianne, Lauren, Mary Frances, and Br[illegible]

1. The student has the ability to collect and organize the data. She ordered the measurement results correctly. She also knew that the data for the Shoe Story could be displayed on a bar graph and constructed a bar graph to display the measurement results.
2. The student displayed the measurment results on a teacher prepared grid and demonstrated the ability to count on from three inches accurately to show the length of each of her friend's feet.
3. The student's explanation of how she collected the data for the Shoe Story is clear and shows complete understanding of the task. Spelling and punctuation errors did not interfere with understanding her explanation.
4. The student indicated that she learned how the ruler was invented but did not include that information in her story.
5. The student identified the tool used to make the measurements.
6. In the King's Foot activity, the student showed number sense, used prior knowledge about estimation and made reasonable estimations when asked to estimate the length of an object in the King's Foot. When the student compared her foot with the king's foot, she used the data she had collected to conclude that it would take fewer of the king's feet to measure the length of an object than it would of her feet.
7. The student was able to communicate her mathematical thinking and is confident that she can now measure anything."

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The King's Foot

Object	Length in My Feet	Estimate for the King's Feet	Length in the King's Feet
name tag	1½ feet @ 2 ft.	@1 ft	less than a king's foot
radiator	18½ feet @ 19 ft	@16 ft	@13 ft.
dress length	about 3 feet	@2½ ft.	2 feet
chair height	2½ feet @3 ft	@2	@2
chalkboard area	19 feet	@17	@14

@ = about

Mar. 8, 1999

The king's foot

My name tag in my foot was @2 feet. In the king's foot it was less than 1! The radiator was @19 in my foot. It was only 13 of the king's. In my foot my chair height was @3 of my foot. It was @2 in the king's. The chalkboard was 19 of my foot and only @14 of the king's foot. The measurments for him were shorter because is foot is longer than mine.

How can your questions guide further instruction?

"The student is a second grader. This task provided an opportunity for the student to use what she learned about graphs from previous lessons/experiences. I had given no formal instruction in linear measurement prior to this unit of study, but the student was eager to begin the task and remained engaged throughout the activity. The results of this measurement task are evidence that she needs creative/open-ended problems to work on and more opportunities to do her own organizing of information. An extension of this activity, for this student, might be a mini-lesson in perimeter and have her figure out the perimeter of the bed in *How Big Is a Foot?* or objects in the classroom.

The rubric assessed the student's mathematical understanding without assessing the student's writing ability. The next time I might take time to develop a task specific rubric for the activities in this unit of study."

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Generic Mathematics Rubric

Level 4
Well done— The work clearly shows the child's ideas about the investigation. The model is explained well, and it shows understanding of the mathematics used to do the work. The answers are correct. Comparisons are made and explained when needed.

Level 3
Acceptable—The work shows the child's ideas about the investigation. The model is described, and the correct answer is given. The work, or the approach to the work, should be more orderly, but the needed mathematics are done correctly. The model is compared, although the explanation is not as clear as it might be.

Level 2
Revision needed—The work may not be complete, or the description is not explained very well. The model does not show an understanding of the math in the investigation, or there are a number of mistakes. The work needs to be redone.

Level 1
Restart—The work misses the math in the investigation and must be redone. Additional work with the teacher is needed to ensure understanding of what the assignment is about and what is expected.

Hands of Learning

School: Hunter Elementary
Small Learning Community: Hands of Learning
Teachers: Adele O'Brien, William Palacio, Shirley Foulkes
School Phone: 215-291-4710

Example of Student Work: Student peer interview (transcribed from videotape)
Content Area Focus: Visual Arts
Grade: 3

In this Unit of Study, third grade teachers and an art teacher collaborated with a local arts organization, the Clay Studio, to provide students with an exciting multidisciplinary experience. Students learned to work with clay and investigated various aspects of history, architecture and their surrounding community.

Unit of Study Summary

"Students were introduced to the Spanish architect, Antonio Gaudi, through the video, *Gaudi*. Will Palacio, the 3rd grade teacher, had visited Spain in December and shared his photos of Gaudi's architecture. The students were asked to make preliminary drawings of buildings inspired by the work of Gaudi. Next, some of the students participated in an after-school walk around the neighborhood to take photographs of the various architectural styles. Some students found architectural features which had Spanish influences and others found decorative elements reminiscent of the Gaudi style. The students' 35mm and Polaroid stills were then shared with their classmates and a visiting architect, who brought blueprints and showed slides of his work. He also showed slides of his native country, Morocco. During the architect's visit the students got an idea of the planning and the process involved in constructing a building. Next, the Clay Studio teachers gave a demonstration on how to construct a Gaudi-like house out of clay. The students used lace and a rolling pin to imprint textures that imitated the decorative tile work on many of Gaudi's buildings. The Clay Studio teacher also demonstrated how to add other architectural features, such as doors, windows and towers. After the first week of construction, the houses were brought to the Clay Studio to be fired. During the next visit, the houses were painted and glazed. The students then wrote poems about their clay houses. An example follows:

I Made a House of Clay
I made a house of clay, big and wide.
It has a roof and strong body.
I made it for the people in my neighborhood.
It is a church house where old people can live.
The cross on top is for when if a robber comes.
God is with them for protection so they won't die or get hurt.
The walls are black, beige, yellow and purple.
I splattered the black dots with a brush.
It is a house that I made.

The students were then ready for a class trip to the Clay Studio where they would get a tour of the artist-in-residence spaces, the gallery, and the school. They would also remove their Gaudi houses from the kiln. As part of their assessment they were interviewed and videotaped in the 2nd floor gallery space. A fourth grade student conducted the interviews. Students then wrote thank you notes to the Clay Studio that described their experiences. The last part of the unit of study was to put the work on display for an opening reception.

Parents and all the students from the small learning community were invited to see the clay houses and perform in an assembly, which was based on the theme of success."

What should students know and be able to do?

Understand and apply art media, techniques and processes. [Visual Arts Standard #1; Philadelphia Curriculum Frameworks]

What were students asked to do?

"In creating the clay house, the student was asked to use the style of Gaudi as an inspiration for creating her own house. [The student was then interviewed about her creation by another student.]"

What story does the work tell?

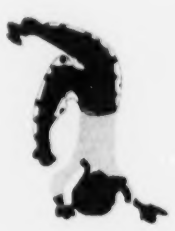
"In this documentation of one student's interview and work sample, the student demonstrates that she has learned to "understand and apply art media, techniques and processes." She has made a clay house and is able to talk about the architecture and the process that the architect goes through in order to create a real building. She then went on to set goals for herself planning other things she would like to make out of clay. In fact, she did go on to participate with a community mural and tile mosaic organized by the Clay Studio and the art museum.

The following is transcribed from the interview between the student and her interviewer, a fellow student. Her clay house and her responses to questions about her house clearly show evidence of teaching and learning."

Student Interviewer: What were you asked to do?
Student: They asked me if I wanted to roll out a design on my piece of clay or if I want to make my clay house with different ideas that I come from...

What do you like about your house?
That I used a lot of colors and I put like a little swirl on top.

What did you learn?
I learned that messing with clay you have to be very careful if you drop your piece of clay it will break, cause it's fragile.



Where did you get your ideas?
I got my ideas from looking at Gaudi pieces and video of Gaudi.

What is clay?
Clay is something that you can mess with and shape it into anything that you would like to show people.

What is architecture?
Architecture is buildings and different stuff that people make to show people so they can live in it.

What does an architect do?
The architect designs houses, puts it on blue print, and then he tell constructors what to do and they will do it for the architect.

What was it like working with clay?
It was fun because you can design anything that you want to do and you can put anything in the houses.

How did you do it?
Layed out clay in a circle shape and then another piece of clay and put it in a circle shape so I could make the back of my house.

What does your house mean to you?
It means to me that it's nice and that I like to show a lot of people that it is great and that they will like it very much.

What do you think it will mean to other people?
Can show to other people. I think it will mean to other people that it is great and that they will like it very much.

What do you think other people will see when they look at your house?
I think they will see a nice house in a forest or somewhere that is beautiful that you can stay and play.

Do you see anything in your neighborhood that reminds you of your house?
I see a lot of gardens and doors and I see a lot of tables and also I see some houses that have a swirl on top.

If you could make your house out of another material what material would you use?
I would use wood or plaster to make it.

Where would you build it?
I would build it at the Clay Studio or I would build it at my house.

What else would you make out of clay?
I would make a birdhouse and other things. I'd like to make different things that I like to make.

How does it feel to be an artist showing your work at the Clay Studio?
It feels nice and you get to tell people how you can make your piece and how did you do it and the Clay Studio.

What Story Does The Work Tell?

"Each one of these questions relates to one of the arts portfolio parameters—which are included in the Arts Portfolio Rubric provided (see pg 18). An example of this follows: When the student was asked, "what did you learn?," she was able to talk about the characteristics of the medium of clay. "I learned that messing with clay you have to be careful if you drop your piece of clay it will break, cause it's fragile." Clearly this refers to the Visual Arts Standard #1 within the School District's Curriculum Frameworks, "understand and apply art techniques, mediums and processes." It also relates to the portfolio parameter, Depth of Understanding; How well do you know the arts? "Accuracy, patterns and trends and connections." For her age level, this student would receive a level 4 on that rubric."

How Can Your Inquiry Guide Further Instruction?

"Here is an example of a performance-based assessment which can be included as part of a showcase portfolio assessment. Using the videotaped interview I am able to expose students to the portfolio process. It is my belief that the portfolio process will enable students to become aware of what they are learning and how they are learning. For the teacher it helps to create a partnership with the students, a partnership where the responsibility for teaching and learning is shared."

Arts Portfolio Rubric

Parameters	Description			
	4	3	2	1
Depth of understanding: How well do you know the arts? • Accuracy • Patterns and trends • Connections	• Arts information and ideas are accurate, thoughtfully explained and accurately linked to major scientific themes or concepts. • Patterns and trends are identified, discussed and extended through extrapolation. • Arts connections are correctly identified and discussed.	• Arts information and ideas are accurate and linked to major scientific themes or concepts. • Patterns and trends are identified. • Arts connections are identified.	• Arts information has occasional inaccuracies or is simplified. • Patterns and trends are suggested or implied. • Arts connections may be implied.	• Arts information has major inaccuracies or is overly simplified. • Patterns and trends are unclear or inaccurate. • Arts connections are unclear or absent.
Evidence of Inquiry/Problem Solving: What can you do in the arts? • Arts questioning • Evidence and explanations • Methods and data • Analysis and conclusions • Future steps	• Questions are clearly identified and formulated in a manner that can be researched. • Evidence and explanations have a clear and logical relationship. • Methods generate valid data to address or resolve the question. Where appropriate, variables and controls are specified. • Analyses are accurate. Conclusions are valid, clear, and consistent with data. • Future steps are proposed and linked to previous steps.	• Questions are clearly identified. • Evidence and explanations have a logical relationship. • Methods generate valid data related to the question. Where appropriate, variables and controls are specified. • Analyses are accurate. Conclusions are valid and consistent with data. • Future steps are proposed.	• Questions are implied. • Evidence and explanations have an implied relationship. • Methods generate data related to the question. • Analyses are mostly accurate. Conclusions are related to the data. • Future steps may be implied.	• Questions are unclear or absent. • Evidence and explanations have no relationship. • Methods generate questionable data. • Analyses are somewhat accurate. Conclusions are unclear or unrelated to the data. • Future steps are unclear or absent.
Communication: How well do you communicate what you know and can do in the arts? • Clarity • Focus and organization • Medium/media	• Arts information is communicated clearly and precisely and may also include inventive/expressive dimensions. • Presentation is effectively focused and organized (e.g. using tables, models, texts, tapes/videos). • A variety of media enhance communication.	• Arts information is communicated clearly. • Presentation is focused and organized. • Medium/media facilitates communication.	• Arts information has some clarity. • Presentation has some focus and organization. • Medium/media permits communication.	• Arts information is unclear. • Presentation lacks focus and organization. • Medium/media hinders communication.
Relevance to Society: How well do you show how the arts affect people's lives? • Person and society • Context • Consequences and alternatives • Connections	• Relevant applications to personal and societal issues are identified and insightfully described. • Background information provides clear context for interpretation. • Consequences and alternatives are identified and discussed. • Multiple relevant connections are made to other content areas.	• Applications to personal and societal issues are identified. • Background information provides context for interpretation. • Consequences and alternatives are identified. • Connections are made to other content areas.	• Applications to personal and societal issues are suggested or implied. • Background information provides some context for interpretation. • Consequences and alternatives are implied. • Some limited connection is made to other content areas.	• Applications are unclear or absent. • Background information provides minimal context for interpretation. • Consequences and alternatives are unclear or absent. • Connections are not made to other content areas.

From the Pennsylvania Assessment Through Themes
Portfolio Implementation Guide, Office of Educational Research and Improvement

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Developing Geometry Skills through Manipulatives

School: Stetson Middle
Small Learning Community: Visual and Performing Arts
Teachers: Mindy Elliot, Montik Goodwin, Phyllis Siermine
School Phone: 215-291-4720

Example of Student Work: Design created with pattern blocks, tangrams and pentominoes (black and white reproduction of colored project)
Content Area Focus: Mathematics
Grade: 5

In this Unit of Study, students utilized manipulatives in order to develop skills in identifying various geometric figures, improve their visual perception and hone spatial problem-solving skills. At the conclusion of the Unit, students produced geometric quilts. The teachers chose to analyze one student's final piece.

Unit of Study Summary

"This unit of study engaged students in the use of a variety of manipulatives. Students used pattern blocks, tangrams, pentominoes and geoboards to explore a variety of geometric skills. We had hoped that by working with manipulatives on a consistent basis, students would learn to identify properties of geometric figures, improve their visual perception and spatial problem solving skills, and construct geometric patterns. As each manipulative was introduced, students were engaged in whole group and small group activities led by the teacher. Manipulatives and activities were then placed in the teachers' learning centers so that students would have daily access to them. At the conclusion of the unit of study, students were asked to develop a geometric design and produce a quilt. Students' work was assessed using a task specific rubric which was developed by participating teachers during our team meeting time."

What should students know and be able to do?

Understand space and dimensionality concepts; use them appropriately and accurately and communicate the results clearly. [Mathematics Standard #3; Philadelphia Curriculum Frameworks]

What were students asked to do?

"Students were given a choice of using pattern blocks, tangrams, or pentominoes to create original designs/pictures. Students who chose pattern blocks, as this sample shows, were instructed to design a quilt pattern using the pattern block tracers provided by the teacher. The rubric was shared with students. Teachers verbally explained and visually demonstrated with manipulatives on an overhead, the expectation for an exceptional piece of work."

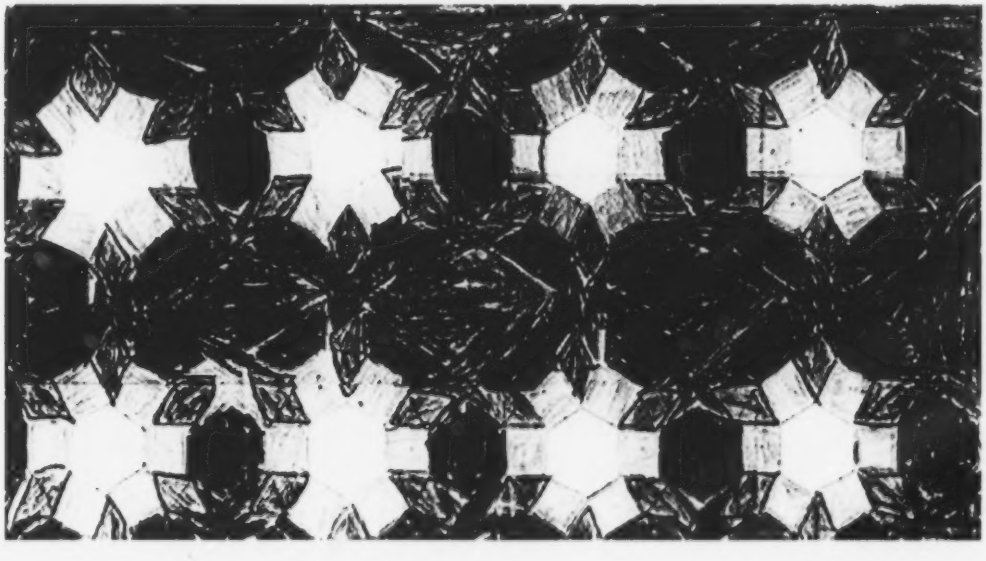
What story does the work tell? How good is good enough?

"The sample of student work was assessed using a 10 point task specific rubric developed by the teachers who worked on the unit. This sample was scored as an "8" according to the rubric. The student did not use her design to fill up the entire quilt paper. This student also lost one point because she was only able to incorporate six of the pattern block shapes into her design. This student did demonstrate a good understanding of lines of symmetry. Unlike many other students who created quilts, this student did not choose to create a closed design. A closed design was defined as a design which formed a polygon such as a square or hexagon.

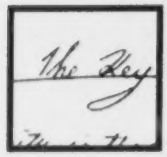
This student was able to align her repeating design on a horizontal plane, but not on a vertical plane. This is demonstrated by her partial design at the end of the quilt."

How can your questions guide further instruction?

"Though not apparent by examining this particular piece of work, upon examination of a larger sampling of work, it was clear that many students had difficulty grasping the concept of a line of symmetry. Geoboards were introduced to students after their projects had been started. In the future, I believe that using the geoboards earlier in the instructional process will help students to more easily grasp this concept. Additionally, on reflecting on the unit as a whole, we have found that what we would do differently is add a writing component to the project."



The Story in History



School: Germantown High
Small Learning Community: Communities in Schools
Teachers: Kathryn Bagley, Eloise Goldenberg, Cynthia Hampton
Teaching Artist: Issac Maefield
School Phone: 215-951-4061

Example of Student Work: Draft, Prewrite and Final Poetry Writing Sample
Content Area Focus: English Language Arts
Grade: 11

In this Unit of study, students explored the art of storytelling under the tutelage of a Poet-in-Residence. They developed skills in writing, revising and editing as they developed stories and poems based on their life experiences. The teachers chose to analyze the evolution of one student's poem, from outline to draft to final product.

Unit of Study Summary

"In January and February of 1999, four classes of ninth grade students, including special education students, learned the art of storytelling to continue the tradition by which history is handed down from generation to generation. Students wrote original stories and plays based on their own lives and the lives of their family and community members, some of which were published in an anthology. During March and April of 1999, two classes of eleventh grade students learned to write poetry under the tutelage of an Artist-in-Residence. This was an interdisciplinary project between English and Social Studies classes, and is part of the larger oral history project that linked the Great Migration North and the development of the blues with American literature.

Both groups were engaged in a series of workshops to learn the art of writing, revising, editing, and rewriting. One exercise to help the eleventh grade get started was to create in clay a visualization of something important to their own lives. A rubric was created to assess student work. The culminating events were a storytelling session and a poetry reading to which they invited parents, members of the community, the children in the Comprehensive Day Care at Germantown High School, and students in other Small Learning Communities. Photos and video were used to document the process. Teachers met on an ongoing basis to discuss assessment techniques, strategies to improve teaching and learning, and to make sure that the project linked curriculum with the Philadelphia standards."

What should students know and be able to do?

Write in a variety of forms including journals, essays, stories, letters, plays, poems and reports using figurative, descriptive, literary, and technical language. [Writing Standard #3; Philadelphia Curriculum Frameworks]

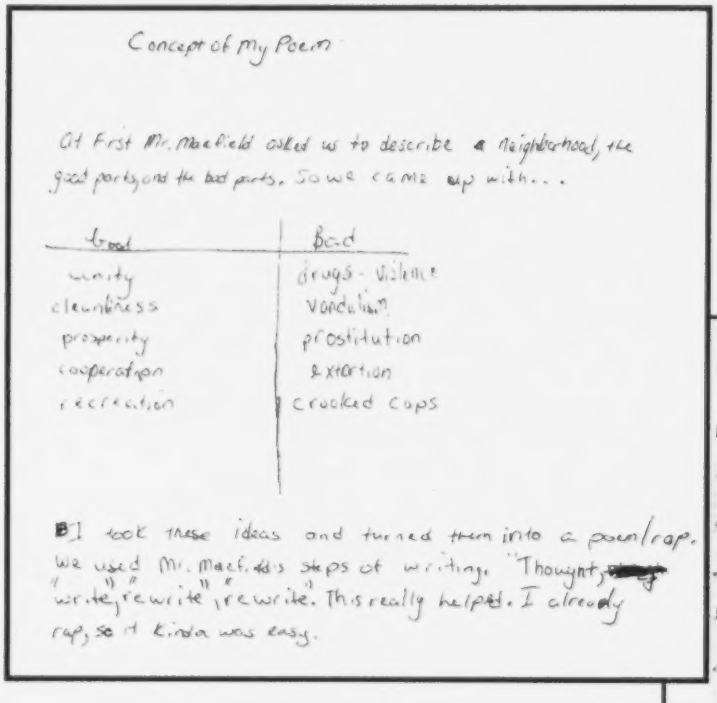
What were students asked to do?

"In connection with the theme of the workshop "Building Better Communities," and the vision of the Communities in Schools Health Horizons SLC, students were asked to determine what qualities made a healthy/unhealthy neighborhood. These characteristics were listed in the appropriate categories. From the list, students selected a topic that appealed to them. Students wrote a preliminary draft on a quality, healthy or unhealthy, that defined a community. Students were asked to share their expressions and ideas with the class. On the following day, students were asked to rewrite their original work."

What story does the work tell?

"In their American History classes, students have examined primary source materials and eyewitness accounts of various events. They have learned how these documents serve to validate the significance of history in people's lives. In writing about their own community experiences, students are documenting their own history. In the selected work, the student is writing about his life and his community as he sees it in 1999.

The student has followed the writing process—think, write, and rewrite. The student submitted a first draft, then a revised draft. In his revision, he has included the use of some literary/poetic devices—rhyme, rhythm, and repetition. Also, the selected work was the only one that attempted to address all the qualities presented in the original list on the community."

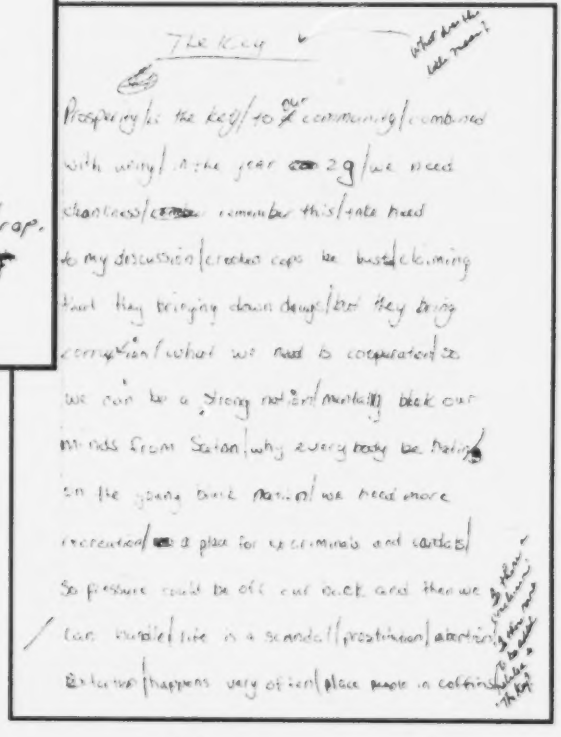


Concept of my Poem

At first Mr. Maxfield asked us to describe a neighborhood, the good parts, and the bad parts. So we came up with...

Good	Bad
unity	drugs - violence
cleanliness	vandalism
prosperity	prostitution
cooperation	extortion
recreation	crooked cops

I took these ideas and turned them into a poem/rap. We used Mr. Maxfield's steps of writing. "Thought," "write," "rewrite," "rewrite." This really helped. I already rap, so it kinda was easy.



The Key

Prosperity is the key/ to our community/ combined with unity/ in the year 2g/ we need cleanliness/ remember this/ I also need to my discussion/ crooked cops be busted/ claiming that they bringing down drugs/ but they bring corruption/ what we need is cooperation/ so we can be a strong nation/ mentally/ block our minds from Satan/ why every body be hating/ on the young black man/ we need more recreation/ a place for ex-criminals and convicts/ so pressure could be off our back and then we can survive/ life is a scandal/ prostitution/ abortion/ extortion/ happens very often/ place more in coffins

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The Key

Prosperity is the key
to our community
combined with unity
in the year 2 gee
we need cleanliness
remember this
take heed to my discussion
crooked cops be bustin
claiming that their bringing
down drugs
but they bring corruption
what we need is cooperation
to be a strong black nation
mentally mind block our
minds from satan
Why everybody hatin
on our young black nation
we need more recreation
a place for excriminals
and vandals so
the pressure could be
off our back and then
we can handle
life is a scandal

Prostitution
abortion
extortion
happens very often
placin my people in coffins

The Key

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How good is good enough?

"The rubric below was used to score student participation and product. In his presentation, the Teaching Artist focused on the process of creating. Because the class was dealing with poetry, and not a composition theme, more freedom of expression was allowed. There was no set form to follow. If students followed the process, they met the guidelines given. This student received the following grades based on the rubric: Daily work: 4 Revision/editing: 3."

Communities in Schools Health Horizons
Assessment for Poetry Unit
Poet-in-Residence Isaac Maefield

Process & Product
Students will work under the direction of a Poet-in-Residence to create their own poetry. They will follow a process whereby they will do exercises to write effectively, to edit their work, and to rewrite what they have produced for a final version.

Students will learn how poems are constructed. They will be empowered to create poems that express their personal stories. They will then give a poetry reading for their classmates, parents, and community partners. Their work will be collected in an anthology, and each student will receive a copy. Copies will also be made available to the school library.

As a part of an interdisciplinary curriculum, this Poetry workshop will provide the students with an historical framework for their American History class. It will show them the evolution of Black writing (including blues and gospel music) from the early 1900's to the present and how it parallels the movement of people from a rural economy to an industrialized one. They will learn the value of oral history and its relationship to literature. Students will view videotapes and listen to audio tapes that support these lessons. Students will learn that primary source materials can be accessed in many forms. The poetry that they write will be one more source of primary information which future generations can use.

DAILY WORK
Students will be asked to write and turn in certain number of poems per day, demonstrating the use of a specific poetic technique.
4 -Student turns in the required number of poems each day, and shows understanding of the assignment
3 -Student turns in the required number of poems each day, but does not show an understanding of the assignment
2 - Student does not turn in the required number of poems each day, but shows an understanding of the assignment of the work he does turn in
1 - Student does not turn in the required number of poems each day, and does not show an understanding of the assignment
0 - Student does not turn in any work, or is absent

REVISION AND EDITING
Student will demonstrate with at least one assignment a knowledge of editing and revision.
4 - Student confers with and edits his first draft following all the suggestions (critiques) given by the Poet in-Residence.
3 - Student confers with and edits his first draft following most of the suggestions (critiques) given by the Poet-in-Residence

2 - Student confers with and edits his first draft following some of the suggestions (critiques) given by the Poet-in-Residence
1 - Student confers with and edits his first draft following a few of the suggestions (critiques) given by the Poet -in-Residence
0 - Student does not confer with the Poet-in -Residence and does not turn in a revision of the first draft of his work.

How can your questions guide further instruction?

"The student's work went beyond the basic assignment. He incorporated both positive and negative aspects into his poem/rap, and he showed some creativity. His teacher has some curiosity about the title. Is there more he would have added? Is there a conclusion? Why is the title "The Key?" Therefore, this lesson could continue to elicit more revisions. The next logical step in this project is to look more closely at one unhealthy aspect of the community, examine how this situation could be improved, and have the students participate in a service learning project which would impact positively on the health of the community."

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The Art of the Book

School: Spruance Elementary
Small Learning Community: Arts Based Curriculum
Teachers: Marlene Gold, Leslea Herman, Sylvia Pelta
School Phone: 215-537-2514

Example of Student Work: Original story book with illustrations and text
Content Area Focus: English Language Arts and Visual Arts
Grade: 4

In this Unit of Study, students studied multiple aspects of children's book illustration, including illustration forms, media, and the techniques of different artists. Students then wrote and illustrated their own books. The teachers chose to analyze a whimsical story produced by one of their students.

Unit of Study Summary

"The Art of the Book unit gave students an opportunity to study a variety of children's book illustration forms, media and artists. Children read books illustrated by collage, photography, pop-ups, scratch art, painting, quilting, pen and ink print making, pencil drawing, watercolor, and mixed media. The art focus of our Small Learning Community was continued by creating art centers which encouraged and allowed the students to explore a variety of art media in order to illustrate their own writing. These art kit/centers each contained books representing a particular type of illustration, as well as art materials needed to represent that art form. Also included in the kits was information on various illustrations, how-to books, assessment rubrics, and reflection forms. Each kit was the basis for an art center and was circulated among the third and fourth grade classrooms (some were also used in first and second grades). Students used the kits to explore various art forms, become familiar with their use, and recognize the techniques when they were seen in other books. They also gained recognition of specific illustrations, such as Allsburg, Cooney, Ringgold, Pinkney and others.

After completing a piece of writing, the children chose an art form to illustrate their work. Written pieces were peer edited, and final editing was done in conferences with teachers. Students, peers, and teachers evaluated the students' work, with equal weight given to each evaluator. Reading, writing, and visual arts standards were used for instruction and evaluation. Completed student books were placed in a classroom library to be shared with classmates and were also read to students in lower grades."

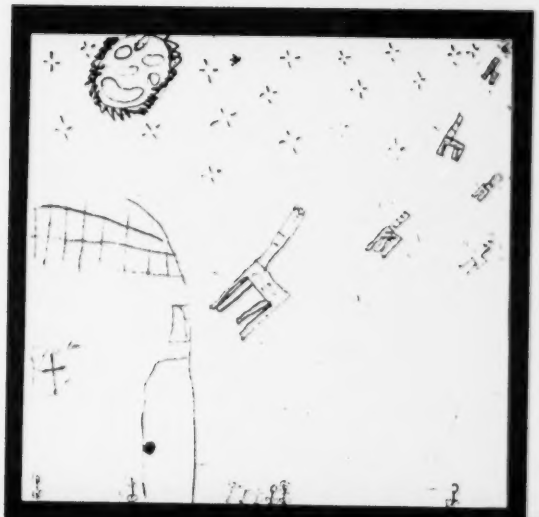
What Were Students Asked To Do?

"Each student was to work with a kit and write their own story in the style of an author/illustrator. A 'pencil drawing' kit was used for this activity, which included books by Chris Van Allsburg. The students were fascinated by Van Allsburg's *The Mystery of Harris Burdick*, a mysterious book of twelve pencil drawings, each one an illustration for a story which has "disappeared." The reader is challenged to write the missing story based on the picture, title, and caption. The students each chose one picture about which to write a mystery story.

This student chose "The Mystery of the Seven Chairs". The caption of the drawing read, "The fifth chair went to France." The illustration was of a nun flying in a chair in a French cathedral. The student's work was assessed using a writing and illustration rubric." (see pg 32)

The Mystery of The Seven Chairs

A long time ago a warlock wanted revenge.With warlocks revenge could be somthing like an earthquake or a volcanoe that erupts.But not this warlock he was different.He liked to trick people a lot.So he made the seven chairs.The seven chairs were different .They were almost alive.Of course they didn't eat or anything like that but they had a mind of their own.The night they were made they ran away to the places they were dreaming to go.



The first chair went to Venice.The second went to India.The third to Russia.The fourth to China.The fifth went to France.The sixth went to Maine andthe seventh nobody knows but me.And I will tell you about it if you tell me a story afterwards.

All right then,One day a little girl was walking home from school and a chair fell from the sky right in front og her eyes.At first she thought she was dreaming but she wasn't.She went over and picked it up and went shraight home.She told her parents about it, but they didn't believe her.

The seventh chair knew where it had ended up.He was in Philidelphia and that's where it planned to go.The girl knew it was magic so she said to it,"I know you are, so do a trick for me."The chair heard her so he flew all over the room.The girl was surely amazed so she asked the chair"Can you take me all around the world?"The chair couldn't talk so he had to act it out.

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The chair was very smart so he turned himself into a person and told the girl that he could.Then he asked her where she wanted to go first.She told him she wanted to go first to Venice to ride in a boat.So they went and there the chair saw his brother the first chair.

The chair was so happy to see his youngest brother.The girl was even happier that she had two magic chairs.

Then she said she wanted to go to India.So when they got there the oldest chair spotted another chair ,it was the second oldest chair.And the girl kept wanting to go to all the places that the chairs were at.The chairs and the girl was so so happy and they all lived happily ever after

What Should Students Know And Be Able To Do?

Write in a variety of forms including journals, essays, stories, letters, plays, poems, and reports, using figurative, descriptive, literary and technical language. [Writing Standard #3; Philadelphia Curriculum Frameworks]

Understand and apply art media techniques and processes. [Visual Arts Standard #1; Philadelphia Curriculum Frameworks]

What Story Does The Work Tell?

"This student wrote a very creative and lively piece of fiction based on a kernel of information. Her writing not only shows imagination and creativity, but also reveals the personality of the writer. She established a good frame for the story and showed clear progression to the conclusion. Details, descriptions, and characters were fascinating. She created an unusual "warlock," who had the power to create earthquakes. The warlock also enjoyed tricking people, and so invented magical chairs that have human characteristics: feelings, dreams, and the ability to act and speak ("They didn't eat but they had a mind of their own.") She engages the reader by withholding a piece of information until the reader tells a story in exchange. Throughout the writing, the reader can clearly hear the voice of the author.

The ending of the story seems a bit rushed and could have been more developed. The work generally shows good grasp of the conventions with

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only minor spelling and usage errors (possibly typos). In the course of writing the book, the student learned to word process in the computer lab, and the final copy was easy to read. On most items of the writing rubric, the student scored 3—the highest score. The illustrations were creative, detailed, and enhanced the story (earning a 3 rating), however they were simple line drawings-little evidence that she expanded her knowledge of the use of shading, three dimensionality, or perspective, thereby rating a 2 in that area."

How Can Your Inquiry Guide Further Instruction?

"While the students were successful in their writing and illustration process, we felt that our assessment rubrics did not truly reflect or inform their work well enough. They need to be redesigned to be more explicit, supportive and connected to the standards. We are learning, too."

Art of the Book — Assignment Rubric

Name: **Date:** June 10, 99

Writing Assignment: Harris Burdick

Art Media: Pencil drawings.

Book Title: The Mystery of The Seven Chairs.

each Score 1 2 3-best

	Self	Peer	Teacher
Story:			
1) The story is neatly written or typed. The words are easy to read.	3	3	3
2) The story or paragraph has a good topic sentence.	3	3	3
3) The story has a good concluding sentence.	2	3	3
4) The details are interesting and make a creative story.	3	3	3
5) The sentences are complete (no fragments or "run-ons").	3	3	3
6) Spelling and punctuation are accurate.	3	3	3
7) The story follows the assigned form — journal, report, fiction, non-fiction, letter	3	3	3
Illustrations: 1) Illustrations help tell the story.	3	3	3
2) Illustrations are creative and detailed.	3	3	3
3) Art work shows understanding and appropriate use of media	1	3	2

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Comments: I think that the art work shows understanding and appropriate use of media. Very Creative and entertaining story. Mrs P

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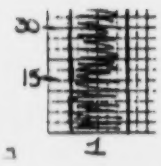
Integrating Problem Solving Math/Science Investigations



School: University City High
Small Learning Community: Math/Science Magnet
Teachers: Laksmi Pillalamarri, Deborah Andrews, Dina Portnoy
School Phone: 215-387-5100

Example of Student Work: Math Lab Report (partially shown here)
Content Area Focus: Mathematics
Grade: 9

In this Unit of Study, students utilized a variety of complex measurement tools to compile and graph data based on measurements such as length, area, volume, density and mass. The teachers chose to analyze one student's lab report on the measurement of various aspects of a banana.

Unit of Study Summary

"This unit of study was an integrated math and science course for ninth grade students before they began the Interactive Mathematics Program. Using a variety of technological tools, including graphing calculators and Calculator Based Labs (CBL), students developed their skills in data collection and analysis. They explored scientific phenomena by making connections between science and math. They were also encouraged to explore the physical world using this technology and their data collection. Students conducted a variety of activities to measure length, area, volume, density, and mass. Students also developed communication skills by writing and demonstrating their understanding of the task through oral, visual, and graphic presentations. Thus students were engaged in developing multiple skills in a range of curricular areas."

What Should Students Know And Be Able To Do?

Use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data and graphs in problem solving situations and communicate the reasoning used in solving these problems. [Mathematics Standard #4, Patterns, Algebra and Functions; Philadelphia Curriculum Frameworks]

What Were Students Asked To Do?

"The student work is a lab report on the study of using a beam balance for measuring the mass of an object (only partial lab report shown). Students were expected to recognize relationships between parts and the whole. Using a banana, students used math skills to find percent and fractions and developed various graphs to show the relationships between the edible and non-edible parts of a banana.

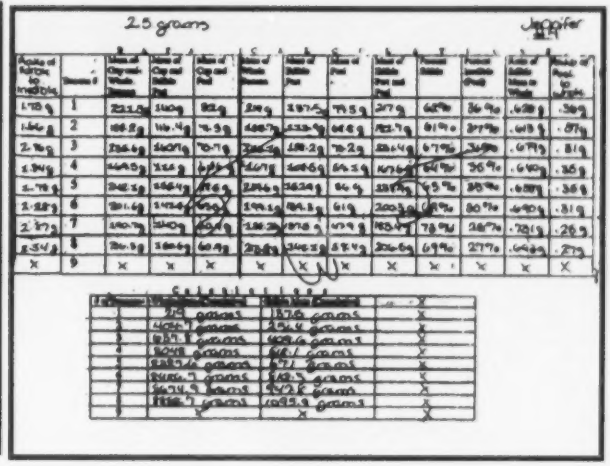
Students were asked to measure the mass of an empty cup, and then, measure the mass of the same cup with an unpeeled, whole banana. Next the students measured the mass with a peeled banana in the cup. Students placed the peel in the cup and measured its mass. They were then asked to repeat this process for eight different bananas (two bananas for each student, and four students in each group). They tabulated their data, found the ratio of peeled to unpeeled and unpeeled to whole, and found the percent of edible and inedible parts of the banana. They drew bar, pie, and line graphs to find the relationship between the variables. They also used the TI-83 graphing calculator and entered their data in the lists to draw the graphs and find the regression equations."

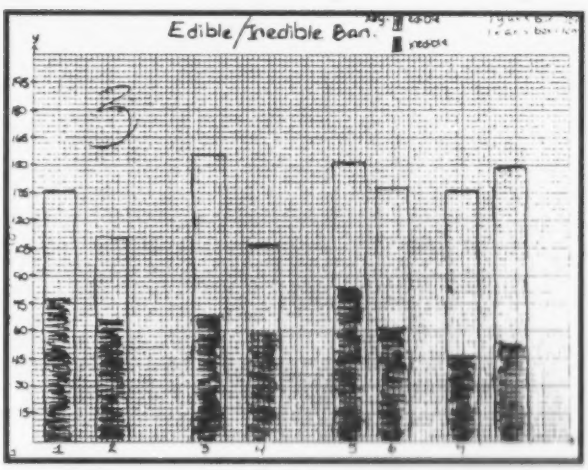
Purpose

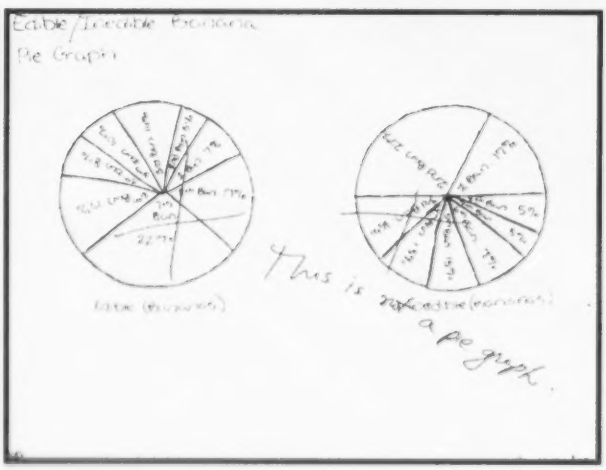
1. To know how to use a beam bowance for measuring the mass of an object.
2. To recognize the relation between parts and the whole of an object.
3. To find the percent composition of a banana.
4. To review percents and fractions.
5. To improve graphing skills
6. To find a relation between the edible and inedible parts of parts of bananas.

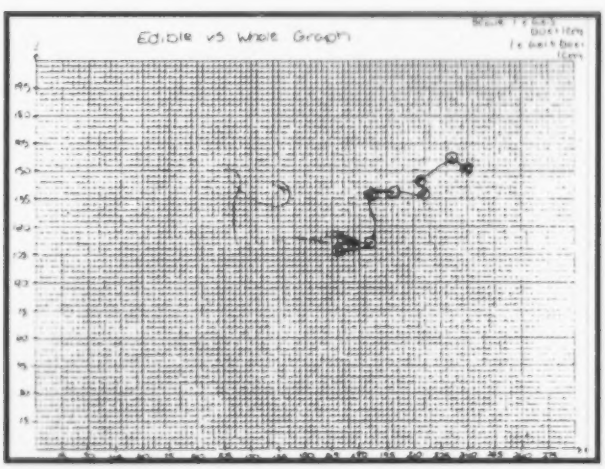
Materials:

* 8 or 9 bananas
* Bowance beam
* Paper towel
* 2 paper cups
* 2 paper plates









Conclusion

From this experiment I have learned how to find the mass of an object, how to find the mass of inedible and edible parts of a banana, and how to find the ratio of the banana. I have also learned how to use a measure beam.

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What Story Does The Work Tell?

"This sample of student work shows the process and product of the student's work for this activity. Along with graphs showing the findings of her data and the relationship between the edible and inedible parts, this student also wrote out the purposes of this activity. Looking at this sample, we can see that this student learned how to use the scale to find the mass of the object. As a result of this activity, she knows the unit of measurement required for this activity and she learned how to develop a graph by differentiating between the independent and dependent variables. She learned how to choose a proper scale for the available data. She was able to explain the procedure and her findings in writing and recognize the relation of the part to the whole as a percent. Using her work, we can also learn that she was unable to transfer information from the bar graph to a pie graph. Rather than making separate pie graphs for each banana, she combined the edible parts of all the bananas into one pie graph. This could reflect her misunderstanding of the function of the pie graph and that the total has to be 100%.

An excellent piece needed to include: The purpose; the theory; the materials used; the procedure; the charts of observational data; the calculations; bar graph; pie graphs; two line graphs; a conclusion which explained what was learned in this experiment. This was a total of 25 points.

Students, as a group, also did an oral presentation of their findings to the class. The oral presentation was ten points, which included the completeness of their findings, the visual graphs, and the clarity and style of their communication to the class.

This sample represented 22 out of 25 points because the pie graphs were incorrect and she failed to demonstrate an understanding of ratios and the line of best fit in her line graph. Her description of the purposes and procedures, and her observation charts demonstrated her understanding of the concepts of the activity."

How Can Your Inquiry Guide Further Instruction?

"We can see that understanding the concept of a pie graph is more complex than interpreting the basic data in the bar graph. Her chart indicates that she did not get a clear understanding of the concept of a ratio. This might be due to a problem with following directions or, at the same time, it may be that this concept can be better understood with multiple activities using different materials. Also, in her line graph, she was unable to find the line of best fit. This was the first activity leading to a linear graph, which possibly explains why she had difficulty finding the line of best fit."

Focus on Living Things

School: Comly Elementary
Small Learning Community: K-2 Early Emergent/Balanced Literacy
Teachers: Andrea Rosen, Sally Rotenberg, Rochelle Sandler
School Phone: 215-961-2008

Example of Student Work: Research book with collage pictures and text
Content Area Focus: Science
Grade: Kindergarten

In this Unit of Study, students studied animals and other living things by researching in the library and over the Internet. Students then wrote books based on this research. The teachers chose to analyze one student's book about grizzly bears.

Unit of Study Summary

"Our small learning community consists of ten classes, kindergarten through second including a younger special education group. This year we began an early emergent/ balanced literacy program encompassing the "Hundred Book Challenge." The unit of study in science focused on Living Things. The books purchased for this Unit provided the means to teach the students about living things through the use of developmentally appropriate literature.

A culminating project for the study of animals was that each child in the small learning community would write his or her own book about an animal. Each teacher taught the science standards for his/her grade. Teaching across the curriculum, incorporating math, language arts, art, and music, the children researched their animal to write their books. We had the help of many fourth and fifth grade students, and many parents who helped by being coaches for the children in reading the books. Many parents also got involved with helping the children research their animal by going to the library, and locating information on the Internet. Parents also came into school to help the children write their books. At the end of the year, we held an "Author Day." Each child presented one of their books and read it for fellow students, parents, and guests."

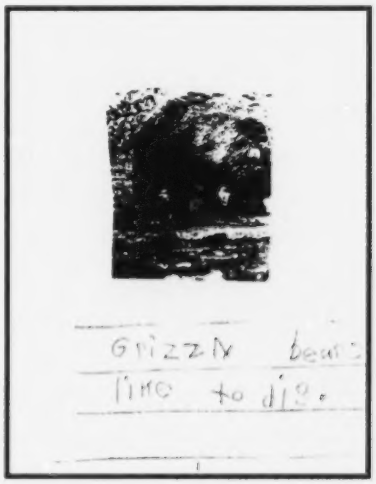
What were students asked to do?

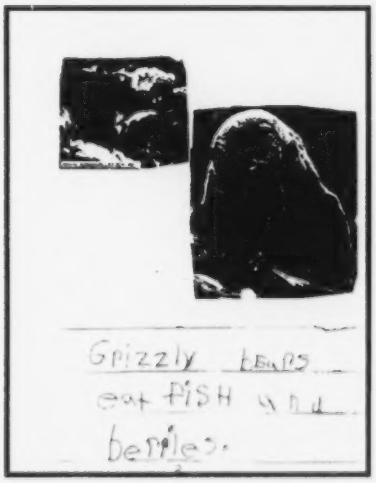
"To begin this project, the class was read to about several animals. The children were asked to describe and make comparisons and contrasts between the different characteristics of the animals. The needs of the animals including food, water, and shelter were discussed. We read about how some animals were affected by seasonal change and weather. We classified the animals by sorting their characteristics to determine into what groups they belonged.

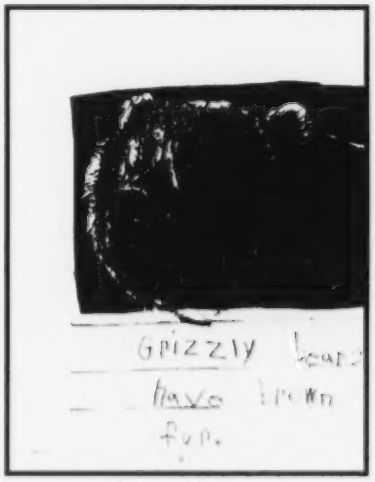
In preparation for this activity, the class was to pick one of the class pets to research. The children chose "Honey the Hamster." After all the observations, measurements, recorded information, and reading about hamsters, we wrote a class book so that the children would understand what they would then do individually. The students then chose their own animal and were introduced to many sources in order to get information. We used "just right" books that they could read. Children brought in books from the library and parents helped their children do research on the Internet. Each child put together their own research book."

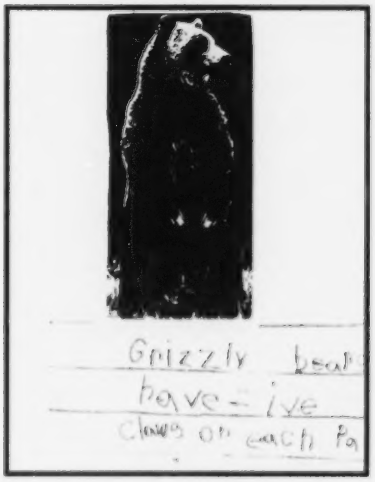
What Should Students Know And Be Able To Do?

Develop an understanding of the characteristics and life cycles of animals through their environment. [Science Standard #3, Living Environment; Philadelphia Curriculum Frameworks]









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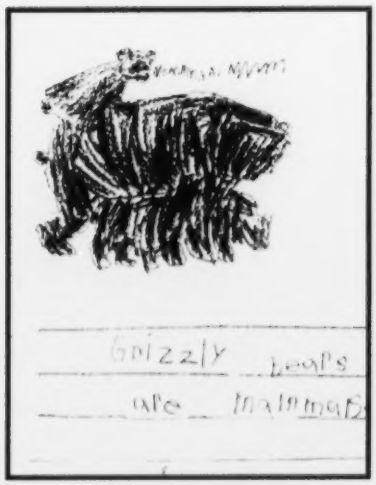

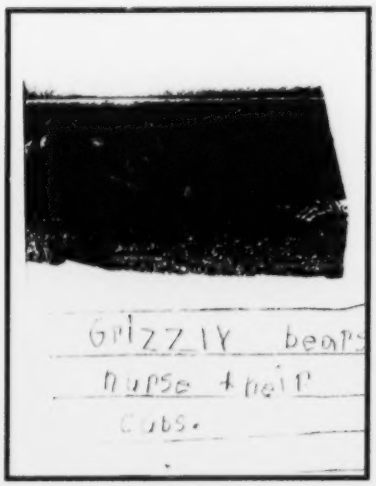

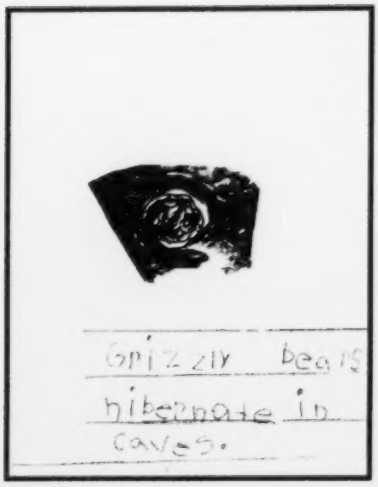

What story does the work tell?

"This student chose to learn about and write a book about Grizzly Bears. He found out in his research that Grizzly Bears eat fish and berries. To describe them, he stated that their skin covering was fur and the color was brown. He wrote about their claws and that they take care of and nurse their young. He decided that they were mammals. He found pictures to match the facts that he wrote. One of the reading strategies that the children learned when reading in their 'just right' [developmentally appropriate] books, was to use a picture clue. In writing his book, he used the picture to illustrate his writing showing that he comprehended the facts used. By using non-fictional reading books, he was able to pick out factual information, and write using descriptive language. This student also took pride in his ability to research information, write about what he had learned and then to share his knowledge and work with other students, parents and teachers. He was able to see that even though he is in kindergarten, he can be an author. He was able to follow the steps of the writing process: organizing information, pre-writing, writing, revising, editing, and publishing. The book became a piece of quality work that could be displayed for others to enjoy.

This student and his classmates met the science and language arts standards. They were involved in problem solving skills, mathematics processes, and geographical studies. The project was able to encompass all these areas and provide an exciting learning experience."

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Inquiry-Based Multimedia Literature

School: Rhawnhurst Elementary
Small Learning Community: HOT (Higher Order Thinking) Skills
Teachers: Sharon Kaplan, Sherry Keller, Anthony Polselli, Dorothy Zubras
School Phone: 215-728-5013

Example of Student Work: HyperStudio Stack Presentation and Primary Nonfiction Literature book about Polar Bears (Paper version of book shown)
Content Area Focus: English Language Arts
Grade: 5

In this Unit of Study, students researched topics of their choice using print and on-line reference resources. Students used the multimedia program HyperStudio to present their research and to create books to be shared within the school. The teachers chose to analyze one student's multimedia presentation on Polar Bears.

Unit of Study Summary

"Our purpose was to have students create nonfiction interactive literature books for the children in the primary grades using HyperStudio. We also wanted our fifth graders to develop and improve upon these skills: Strengthen and extend our students' skills as creative and critical thinkers through inquiry-based research and technology; Develop research and notetaking skills; Teach the use of various reference materials; Teach the use of the Internet; Teach the use of HyperStudio as a presentation program; Provide a library of student created non-fiction literature for our primary students."

What should students know and be able to do?

Conduct and document inquiry-based research using oral, print, and communications systems resources. [Writing Standard #4; Philadelphia Curriculum Frameworks]

What were students asked to do?

"Students were asked to select a topic of interest that they would like to research. They were to garner information from various reference sources and present their material in a report or HyperStudio presentation. Then they were to use this information to write a non-fiction literature book for primary grades using HyperStudio.

Our first lessons took place in the school library and classrooms where the students had the opportunity to review, share, and discuss non-fiction literature at fifth and primary grade levels. The students were given access to many non-fiction works in a wide range of subject areas.

The students brainstormed topics they thought they would like to learn more about and research. In small groups, and then as a class, they discussed topics they thought would interest a primary grade student. These topics were then compared to the research topics. The students then determined the topic they would research and write about.

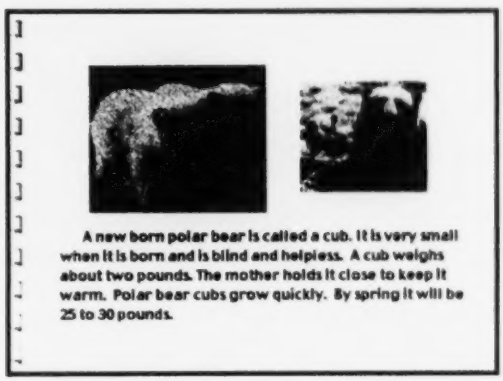
Our fifth grade teachers, along with the Technology Teacher Leader and school librarian, introduced research skills and techniques to the students. Research was conducted in the regional libraries, the school library, classroom, and computer lab. Appropriate lessons were taught in notetaking, research techniques, and the use of reference materials. Lessons in the use of electronic reference materials were given in the computer lab. Discussions on ethics were also held. Students were made aware of the proper use of copyrighted materials. Lessons in paraphrasing and quoting material were taught.

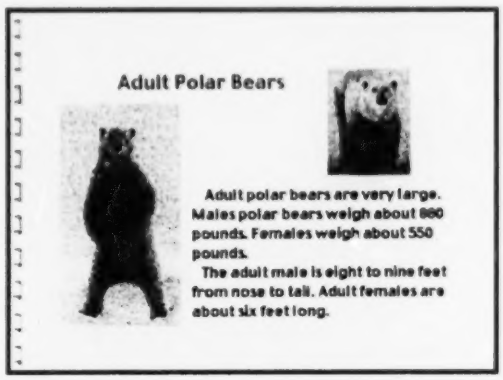
One class wrote research papers, while the other presented their research in the form of HyperStudio stacks. Creating the reports provided the students with experiences in

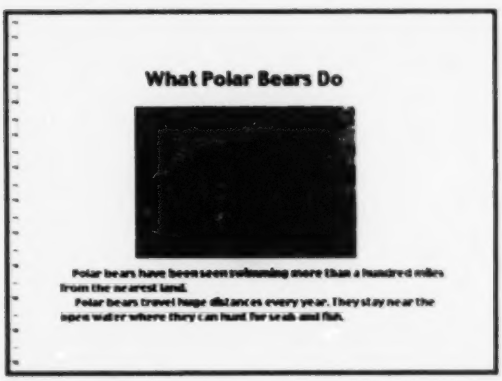
cooperative learning, and individual peer tutoring. Throughout the project, the students were active learners.

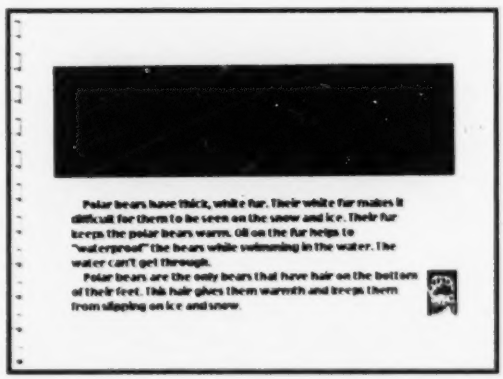
The information gathered in the research reports was then simplified for our primary grade students. After computer lab lessons on HyperStudio, the students created electronic non-fiction primary level books.

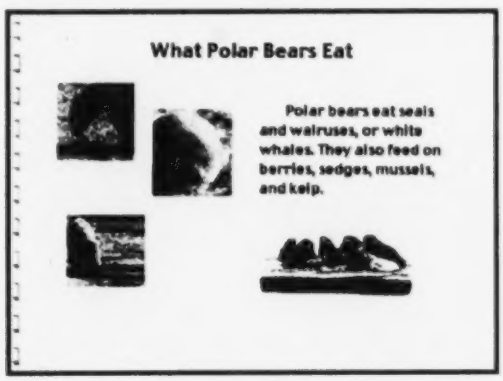
These books were then shared with the first and second graders for whom they were written. Hard copies of the electronic books, HyperStudio stacks, were made into books with our book binding machine and placed in primary classroom libraries."


A new born polar bear is called a cub. It is very small when it is born and is blind and helpless. A cub weighs about two pounds. The mother holds it close to keep it warm. Polar bear cubs grow quickly. By spring it will be 25 to 30 pounds.


Adult Polar Bears
Adult polar bears are very large. Males polar bears weigh about 880 pounds. Females weigh about 550 pounds.
The adult male is eight to nine feet from nose to tail. Adult females are about six feet long.


What Polar Bears Do
Polar bears have been seen swimming more than a hundred miles from the nearest land.
Polar bears travel huge distances every year. They stay near the open water where they can hunt for seals and fish.


Polar bears have thick, white fur. Their white fur makes it difficult for them to be seen on the snow and ice. Their fur keeps the polar bears warm. Oil on the fur helps to "waterproof" the bears while swimming in the water. The water can't get through.
Polar bears are the only bears that have hair on the bottom of their feet. This hair gives them warmth and keeps them from slipping on ice and snow.


What Polar Bears Eat
Polar bears eat seals and walruses, or white whales. They also feed on berries, sedges, mussels, and kelp.

Where Polar Bears are Hunted
Polar bears live in many parts of the northern hemisphere. They mostly live in Greenland and Canada.
Polar bears live on the coast, near the water, so they can find food.

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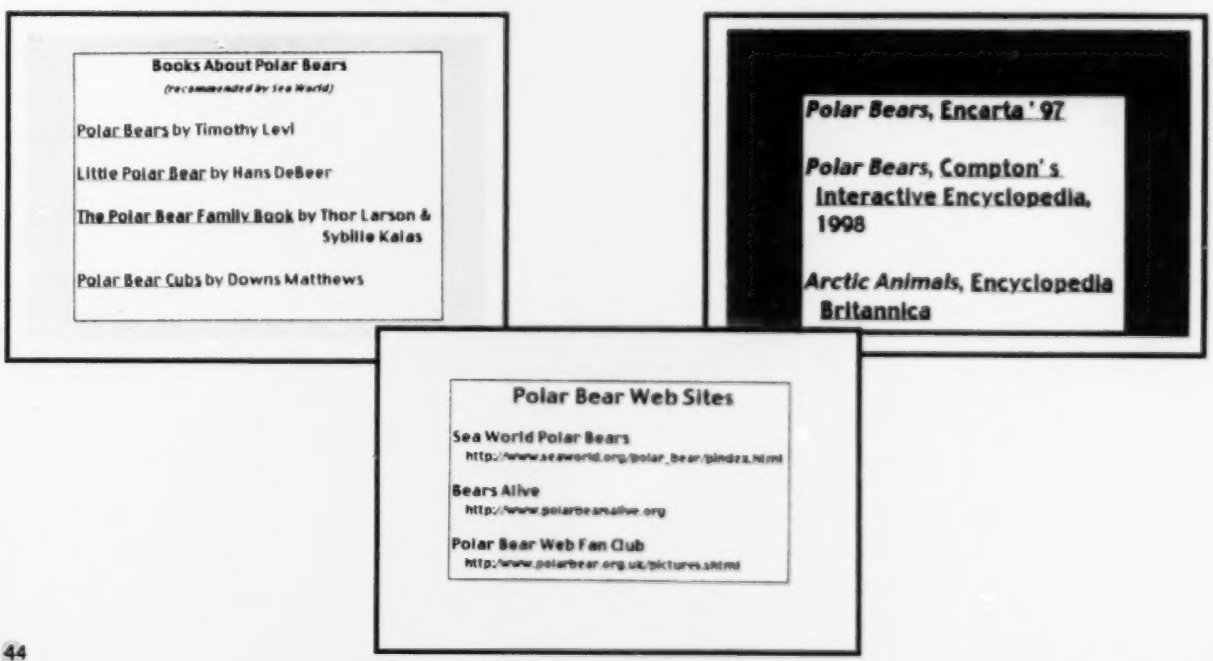
What story does the work tell? How good is good enough?

"The students' research was driven by their own interest. They learned to paraphrase a document. Using HyperStudio as their presentation medium, and various electronic reference sources, the students incorporated photographs, used the video camera to create a QuickTime movie, and used the Internet. They do need more information in properly citing their sources. The HyperStudio project, *Polar Bears*, was assessed on the following teacher/student developed scale, in which 3 equals "excellent", 2 equals "needs a little work", and 1 equals "needs a lot of work."

- **Content**: The students scored a 2. While presentation reflected knowledge of the content area, the students could have included more information on their topic to score a 3. Resources sources need to be cited correctly. The students did not include all asked for information in regard to citing sources.
- **Writing**: The students scored a 3. The HyperStudio research stack was appropriate for the fifth grade level. They were well organized. The focus was clear and there were few usage and/or mechanical errors. The Writing Content Standard #4 was met; the students conducted their inquiry-based research using the appropriate resources.
- **Technology/Presentation**: The students scored a 3 in both areas. They did a wonderful job using HyperStudio to create their research report and create a primary book. They showed a mastery of basic HyperStudio. The presentation was well planned and executed. The graphics, colors, and fonts selected are eye-catching and of interest to a young child.


Books About Polar Bears
(recommended by Sea World)
Polar Bears by Timothy Levi
Little Polar Bear by Hans DeBeer
The Polar Bear Family Book by Thor Larson & Sybille Kalas
Polar Bear Cubs by Downs Matthews
Polar Bears, Encarta '97
Polar Bears, Compton's Interactive Encyclopedia, 1998
Arctic Animals, Encyclopedia Britannica
Polar Bear Web Sites
Sea World Polar Bears
Bears Alive
Polar Bear Web Fan Club

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References and Resources

Print Resources

Assessing Student Learning: From Grading to Understanding. (1998). Ed. David Allen. New York and London: Teachers College Press.

Annenberg Institute for School Reform: Tuning Protocols. From Making Teaching Public Colloquium. Phila. PA, April 8-10, 1999.

Blythe, Tina, Allen, David, & Powell, Barbara S. (1999). *Looking Together at Student Work.* New York: Teachers College Press.

Carini, Patricia, "Descriptive Review of the Child." The Prospect Center for Education and Research, Bennington Vermont.

Harris Helm, Judy, Beneke, Sallee, & Steinheimer, Kathy. (1998). *Documenting Young Children's Work.* New York & London: Teachers College Press.

Mitchell, Ruth, Willis, Marilyn and the Chicago Teachers Union Quest Center. (1995). *Learning in Overdrive.* Golden, Colorado: North American Press.

Standar*ds and Exemplar Series: Assessing Student Performance Grades K-5.* (1997). Eds. Miles Myers & Elizabeth Spalding. Urbana, IL: National Council of Teachers of English.

Sierra-Perry, Martha. (1996). *Standards in Practice, Grades 3-5.* Urbana, IL: National Council of Teachers of English.

Web Resources

Annenberg Institute for School Reform. *Looking at Student Work.* <http://www.aisr.brown.edu/LSW/>

Annenberg/CPB Channel. Critical Issues. <http://www.learner.org/channel/workshops/criticalissues/resources.html>

ATLAS Schools. *Looking at Student Work Toolkit.*
<http://www.edc.org/FSC/ATLAS/toolkit/learn.html>

Coalition of Essential Schools. *Improving Instruction through Inquiry and Collaboration Toolbox.* <http://www.essentialschools.org/projects/iitic/iitictools.html>

Philadelphia Education Fund. *Small Learning Community Mini-Grants.*
<http://www.philaedfund.org/minigrants.html>

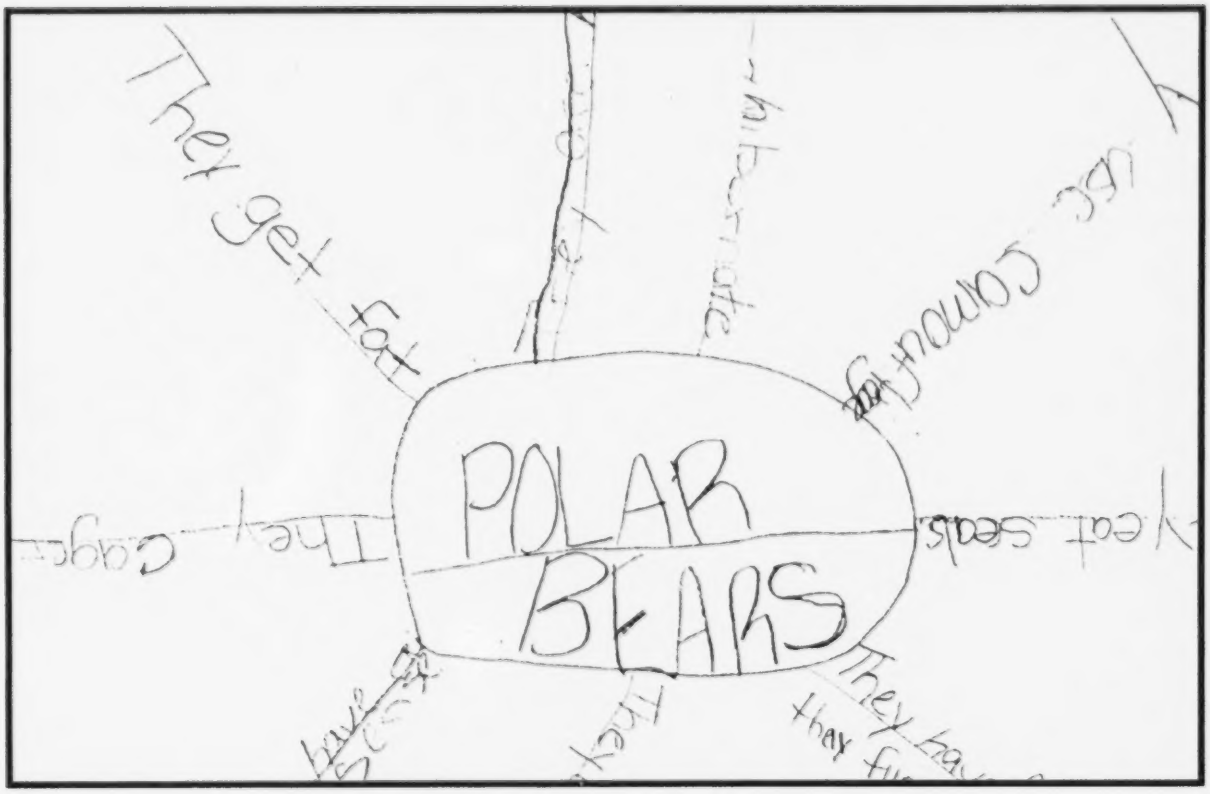
Electronic Learning Marketplace. *Index of Assessments.*
<http://www.elm.maine.edu/assessments/index.stm>

Philadelphia SLC Mini-Grants on the Web

Douglass Elementary School, Philadelphia. *Incredible Edibles.*
<http://www.fi.edu/oceans>

Edison High School, Philadelphia. *Immigration/Migration Oral History Project.*
<http://members.xoom.com/b_stoloff/oral/>

Germantown High School, Philadelphia. *Knowledge is Power.*
<http://members.xoom.com/Knowledgeisp/knowledge_is_power.htm>



Exploring Habitats, Bluford Elementary, Grade 2

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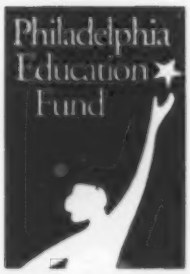

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